

4 a computer terminal device adapted to receive said
5 rechargeable battery pack,

6 said computer terminal device together with said
7 rechargeable battery pack having a size and weight to be carried
8 by an individual person,

9 said computer terminal device having terminal processor
10 circuitry for coupling with said rechargeable battery pack so as
11 to enable operation thereof from battery power, and

12 said computer terminal device having a two-way communication
13 link with said rechargeable battery pack providing for the
14 transmission of messages between the battery pack and the
15 terminal processor circuitry.

C 1 62. A device as set forth in Claim 61, said device with said
2 data communication link providing for the transmission of data
3 and command messages.

D 1 63. A device as set forth in Claim 61, said battery pack and
2 said device having a coupling arrangement such that the
3 communication link therebetween is automatically established when
4 the battery pack is inserted into received relationship to said
5 computer terminal device.

1 64. A portable utilization device according to claim 63, wherein
2 said coupling arrangement provides a path for transmitting a
3 battery charging voltage.

1 65. A portable utilization device according to claim 64, wherein
2 said battery pack monitors battery charging voltage.

1 66. A portable utilization device according to claim 64, wherein
2 the load represented by said computer terminal device is removed
3 from said battery pack when battery charging voltage is effecting
4 charging of said battery pack.

C 1 67. A portable utilization device according to claim 66,
2 wherein said computer terminal device has a power regulator
3 circuit for receiving battery charging voltage and for supplying
4 a regulated operating voltage to the load represented by said
5 computer terminal device.

1 68. A portable utilization device according to claim 67, wherein
2 said power regulator circuit is powered either from said battery
3 pack or from said battery charging voltage which ever is higher
4 in potential.

1 69. A portable utilization device according to claim 64, wherein
2 said rechargeable battery pack contains a rechargeable battery
3 and a charging current regulating circuit for controlling
4 charging of said battery based on battery parameters including
5 battery temperature.

1 70. A portable utilization device according to claim 69, wherein
2 said rechargeable battery pack contains a battery processor which
3 monitors for the presence of battery charging voltage.

1 71. A portable utilization device according to claim 70, wherein
2 said battery processor controls said charging current regulating
3 circuit according to a program stored by said battery pack so as
4 to adjust said battery charging current according to battery
5 parameters for rapid charging of the battery.

C 1 72. A portable utilization device according to claim 71, wherein
2 said battery processor supplies respective command signal levels
3 to said charging current regulating circuit for setting
4 respective magnitudes of battery charging current.

1 73. A portable utilization device according to claim 61, wherein
2 said battery pack is operative to transmit a message to said
3 terminal processor circuitry via said communication link advising
4 that a charging of said battery pack is in progress.

1 74. A portable utilization device according to claim 61, wherein
2 said battery pack is operative to transmit a message to said
3 terminal processor circuitry via said communication link advising
4 that a charging of said battery pack is in progress.

1 75. A portable utilization device according to claim 61, wherein
2 a battery discharge circuit is provided for enabling relative
3 accurate measurement of battery capacity.

1 76. A portable utilization device according to claim 61, wherein
2 said terminal processor circuitry is operative to send a message
3 via said communication link to advise that a battery capacity
4 measurement is to be initiated.

C 1 77. A portable utilization device according to claim 61, wherein
2 said battery pack sends an interrupt to said terminal processor
3 circuitry to advise of a selected condition of said battery pack.

1 78. A portable utilization device according to claim 77, wherein
2 said battery pack measures battery capacity by effecting a
3 discharge cycle, and maintains a record of battery capacity
4 during subsequent battery operation of said computer terminal
5 device so as to send an interrupt to said terminal processor
6 circuitry in response to a selected condition related to
7 remaining battery capacity.

1 79. A portable battery powered system, the system comprising:
2 a battery powered utilization device,
3 a battery pack having a positive voltage terminal, a negative
4 voltage terminal and a data interface terminal, said battery pack
5 providing operational power to said utilization device,

an electronic memory device being disposed within said battery pack which is powered by said battery pack for storing battery pack data,
said data interface terminal operably connected to said electronic memory device for communicating said battery pack data between said electronic memory device and said utilization device; and
a controller for writing said data to and reading said battery pack data from said electronic memory device.

C 1 80. The portable battery powered system of claim 79 wherein said
2 controller is operably disposed within said battery pack.

1 81. The portable battery powered system of claim 79 wherein said
2 controller is operably disposed within said utilization device.

1 82. A battery pack for providing operational power to a
2 utilization device, the battery pack comprising:

3 at least one electrochemical cell having a positive terminal
4 and a negative terminal for providing a voltage to said
5 utilization device; and

6 an electronic memory device for storing and reading battery
7 pack data, said electronic memory device having first and second
8 power terminals and a data interface terminal, said first and
9 second power terminals being connected respectively to said
10 positive terminal and said negative terminal of said at least one

11 electrochemical cell, said data interface terminal for providing
12 data communications for communicating said battery pack data
13 between said electronic memory device and said utilization
14 device.

1 83. The battery pack of claim 82, further comprising a voltage
2 clamp connected between said data interface terminal and said
3 negative terminal of said at least one electrochemical cell for
4 protecting said electronic memory device from accidental loss of
5 said battery pack data.

C 1 84. The battery pack of claim 82 wherein said electronic memory
2 device includes non-volatile memory.

1 85. The battery pack of claim 82 wherein said electronic memory
2 device includes volatile memory.

1 86. The battery pack of claim 82 wherein said electronic memory
2 device includes a temperature sensor for sensing the temperature
3 of the battery pack.

1 87. A method of utilizing a battery pack, the method comprising:
2 utilizing the battery pack with a battery utilization device;
3 generating battery pack information by monitoring said battery
4 pack during said utilizing step;
5 storing the battery pack information in electronic memory;

6 retrieving said battery pack information prior to a subsequent
7 utilization of said battery pack; and
8 subsequently utilizing said battery pack with a battery
9 utilization device according to said battery pack information.

1 88. The method according to claim 87, further comprising the
2 steps of:
3 generating new battery pack information based upon said utilizing
4 step and said subsequent utilizing step; and
5 storing the said new battery pack information in electronic
6 memory.

1 89. The method according to claim 88, further comprising the
2 steps of:
3 retrieving the said new battery pack information prior to a
4 further utilization of said battery pack; and
5 further utilizing said battery pack with a battery utilization
6 device according to the said new battery pack information.

1 90. The method according to claim 87, further comprising the
2 step of automatically establishing communication between said
3 battery utilization device and said battery pack when said
4 battery pack is inserted into received relationship to said
5 battery utilization device.

1 91. The method according to claim 87, further comprising the
2 step of controlling the battery charging current according to a
3 program stored by said battery pack so as to adjust said battery
4 charging current according to battery parameters for rapid
5 charging of said battery pack.

1 92. The method according to claim 87, further comprising the
2 step of sending an interrupt to said battery utilization device
3 to advise of a selected condition of said battery pack.

1 93. The method according to claim 87, further comprising the
2 step of sending a message via said communication link to advise
C 3 that a battery capacity measurement is to be initiated.

1 94. The method of claim 93, further comprising the step of
2 sending an interrupt to said battery utilization device to advise
3 of a selected condition of said battery pack.

1 95. The method of claim 94, further comprising the step of
2 controlling the battery charging current according to a program
3 stored by said battery pack so as to adjust said battery charging
4 current according to battery parameters for rapid charging of
5 said battery pack.

1 96. The method of claim 95, further comprising the step of
2 automatically establishing communication between said battery

utilization device and said battery pack when said battery pack is inserted into received relationship to said battery utilization device.

97. A portable utilization device capable of battery powered operation, said utilization device comprising:

a rechargeable battery pack,

a computer terminal device adapted to receive said rechargeable battery pack,

said computer terminal device together with said rechargeable battery pack having a size and weight to be carried by an individual person,

said computer terminal device having terminal processor circuitry for coupling with said rechargeable battery pack so as to enable operation thereof from battery power, and

said computer terminal device having a two-way communication link with said rechargeable battery pack providing for the transmission of messages between the battery pack and the terminal processor circuitry, and

means for automatically establishing a communications link between said battery pack and said computer terminal device when said battery pack is inserted into received relationship with said computer terminal device.

1 98. The device of claim 97, further comprising means for
2 regulating charging current according to a program stored by said
3 battery pack for rapid charging of the battery.

1 99. The device of claim 97, further comprising means for sending
2 an interrupt to the computer terminal device to advise of a
3 selected condition of the battery pack.

1 100. The device of claim 97, further comprising means for
2 recording of battery capacity during subsequent battery operation
3 of the computer terminal device so as to send an interrupt to the
4 terminal processor circuitry in response to a selected condition
5 related to remaining battery capacity.

1 101. A portable utilization device capable of battery powered
2 operation, said utilization device comprising:

- 3 (a) a battery,
4 (b) a computer housing adapted to receive said battery,
5 (c) said computer housing together with said battery having a
6 size and weight to be carried by an individual person,
7 (d) said computer housing having computer processing circuitry
8 for receiving power from said battery so as to enable portable
9 operation of the utilization device, and
10 (e) a battery system coupled with said battery for monitoring
11 battery parameters,

12 (f) said computer processing circuitry having a two-way
13 communication link with said battery system for obtaining
14 information concerning said battery.

1 102. A portable utilization device according to claim 101, with
2 said two-way communication link providing for the transmission of
3 command messages from said computer processing circuitry to the
4 battery system.

C 1 103. A portable utilization device according to claim 102, with
2 said battery system being responsive to a command message from
3 said computer processing circuitry to transmit to the computer
4 processing circuitry information concerning the status of the
5 battery.

D 1 104. A portable utilization device according to claim 102, with
2 said battery system being responsive to a command message from
3 the computer processing circuitry to set a battery parameter at a
4 specified value.

1 105. A portable utilization device according to claim 102, with
2 said battery system being responsive to a command message to
3 transmit to said computer processing circuitry requested
4 information relating to battery parameters.

1 106. A portable utilization device according to claim 101, with
2 said battery system being operative to send an interrupt message
3 to said computer processing circuitry for requesting service.

1 107. A portable utilization device according to claim 101, with
2 said battery system being operative to notify said computer
3 processing circuitry when the battery is removed from said
4 computer housing.

1 108. A portable utilization device according to claim 101, with
2 said battery system being operative to send an interrupt message
3 to said computer processing circuitry to advise of a selected
4 battery related condition.

1 109. A portable utilization device according to claim 101, with
2 said computer processing circuitry being operative to transmit a
3 command signal to said battery system to cause said battery
4 system to effect a selected action.

1 110. A portable utilization device according to claim 101, with
2 said computer processing circuitry being operative to transmit a
3 command message to said battery system to set an alert point with
4 respect to a battery condition, said battery system then being
5 operative to signal said computer processing circuitry when said
6 alert point is reached.

1 111. A portable utilization device according to claim 101, with
2 said battery system comprising a battery information memory for
3 storing battery information while adequately powered by said
4 battery, said battery system signaling concerning inadequate
5 power being supplied to said battery information memory, thereby
6 to ensure a restart of said battery system when charging power is
7 applied.

C 1 112. A portable utilization device according to claim 101, with
2 said battery system being operative to monitor for the presence
3 of charging voltage.

1 113. A portable utilization device according to claim 101, with
2 said battery system being operative to monitor for the presence
3 of charging voltage and to select a charging current value based
4 on relevant conditions in response to the presence of said
5 charging voltage.

1 114. A battery powered utilization system comprising:
2 (a) a rechargeable battery,
3 (b) a terminal device adapted to receive said rechargeable
4 battery to form an assembly of size and weight to be carried by
5 an individual person,
6 (c) said terminal device having computer processing circuitry
7 for receiving power from said battery so as to enable portable
8 operation of the assembly, and

9 (d) a battery system coupled with said rechargeable battery and
10 monitoring battery related information,

11 said computer processing circuitry being coupled with said
12 battery system for setting a digital value in said battery system
13 at which the battery system is to signal the computer processing
14 circuitry.

1 115. The battery powered utilization system of claim 114, with
2 said battery powered utilization system being operative to send
3 an interrupt message to said computer processing circuitry to
4 advise of a selected battery-related condition.

C 1 116. The battery powered utilization system of claim 114, with
2 said battery powered utilization system having a default value
3 representing a battery-related condition, so as to define the
4 occasion for the interrupt signal, at start up of said battery
5 system.

1 117. The battery powered utilization system of claim 116, said
2 computer processing circuitry being operative to transmit to said
3 battery system a selected battery-related value to replace the
4 default value in said battery system.

1 118. The battery powered utilization system of claim 114, with
2 said battery powered utilization system being operative to sense
3 a reset signal to enable restart of said battery system.

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2 119. The battery powered utilization system of claim 118, said
3 computer processing circuitry being operative to transmit a reset
4 signal to said battery system.

1 120. The battery powered utilization system of claim 114, said
2 computer processing circuitry being operative to send an inquiry
3 signal to said battery system to determine the status of a
4 battery-related condition.

C 1 121. A utilization system capable of portable battery powered
2 operation, said utilization system comprising:

- 3 (a) a battery,
4 (b) a battery system coupled with said battery and monitoring
5 battery-related information,
6 (c) a computer processing system coupled with said battery for
7 receiving operating power therefrom during portable operation,
8 (d) said battery, battery system and computer processing system
9 being of size and weight so as to be carried by an individual
10 person, and
11 (e) a communication link between said computer processing system
12 and said battery system providing for the transmission of battery
13 related messages to said battery system.

1 122. The battery powered utilization system of claim 121, with
2 said communication link providing for the transmission of a
3 digitally coded command message to said battery system.

1 123. The battery powered utilization system of claim 122, with
2 said battery system being operable to store a battery-related
3 default value, and said computer processing system being operable
4 to send a digitally coded command message to said battery system
5 for introducing a value other than the default value into said
6 battery system.

1 124. The battery powered utilization system of claim 122, with
2 said computer processing system being operable to transmit a
3 digitally coded command message causing said battery system to
4 transmit battery-related information to said computer processing
5 system.

1 125. The battery powered utilization system of claim 122, with
2 said battery system being operable for effecting an action
3 related said battery, and said computer processing system being
4 operable to transmit a digitally coded message to said battery
5 system causing the battery system to effect an action related to
6 said battery.

1 126. The battery powered utilization system of claim 121, said
2 computer processing system issuing a clock signal to said battery

3 system to control the transfer of messages to said battery
4 system.

1 127. The battery powered utilization system of claim 121, said
2 battery system being operable to request service from said
3 computer processing system by causing an interrupt thereto.

1 128. The battery powered utilization system of claim 121, said
2 communication link being operable to advise the computer
3 processing system when said battery is removed from the
4 utilization system during battery powered operation.

1 129. The battery powered utilization system of claim 121, said
2 battery system comprising a single chip circuit having a low
3 power standby mode.

1 130. The battery powered utilization system of claim 121, said
2 battery system being operative to obtain a measure of charging
3 voltage to be used for charging said battery, and being operative
4 to transmit information relating to the magnitude of the charging
5 voltage to said computer processing system.

1 131. The battery powered utilization system of claim 130, with
2 said battery system being operative to measure charging voltages
3 over a range substantially greater than a range equal to the
4 nominal voltage of said battery.

1 132. In combination,

2 (a) a battery,

3 (b) an information storage system coupled with said battery and
4 operable for storing battery-related information,

5 (c) said battery and said information storage system being of
6 size and weight to be carried by an individual person as a
7 portable assemblage, and

8 (d) a communication link coupled with said information storage
9 system for transmitting battery-related information to said
10 information storage system from and external source external to
11 such portable assemblage.

1 133. A combination according to claim 132, with a battery
2 charging station for charging said battery, said station being
3 coupled with said information storage system via said
4 communication link for transmitting battery-related information
5 to said information storage system.

1 134. A combination according to claim 133, with said battery
2 charging station being operable to obtain a measure of battery
3 capacity and to transmit information related to battery capacity
4 to said information storage system via said communication link.

1 135. A combination according to claim 132, with a battery
2 charging station coupled with said information storage system via
3 said communication link for receiving battery-related information

4 from the information storage system and for transmitting battery
5 related information to said information storage system.

1 136. In combination,

2 (a) a battery,

3 (b) an information storage system coupled with said battery and
4 operable for storing battery-related information,

5 (c) said battery and said information storage system being of
6 size and weight to be carried by an individual person as a
7 portable assemblage,

8 (d) an external charging station for supplying charge to said
9 battery, and

10 (e) a communication link for coupling said information storage
11 system with said charging station for the transmission of battery
12 related information for said information storage system to said
13 external charging station.

1 137. A method of charging a battery wherein a battery is coupled
2 with an information storage system operable for storing battery-
3 related information, said battery and the information storage
4 system being of size and weight to be carried by an individual
5 person as a portable assemblage, said method comprising:

6 (a) coupling said portable assemblage with an external power
7 source for effecting recharging of the battery, and

8 (b) transmitting to said information storage system battery-
9 related information which is obtained during the recharging of
10 said battery.

1 138. A method according to claim 137, wherein a battery charging
2 station is coupled with said battery, for effecting recharging of
3 said battery, said method further comprising:
4 transmitting battery-related information from the information
5 storage system to said battery charging station to assist in
6 appropriate charging of said battery.

C 1 139. A method according to claim 138, with said method further
2 comprising:
3 transmitting battery-related information from said battery
4 charging station to said information storage system for storage
5 thereby during portable operation of said portable assemblage.

1 140. Apparatus adapted to be carried by an individual person,
2 said apparatus comprising:

- 3 (a) a rechargeable battery pack,
4 (b) a battery utilization system having coupling means for
5 coupling with said rechargeable battery pack so as to receive
6 operating power therefrom,
7 (c) said battery utilization system together with said
8 rechargeable battery pack having a size and weight to be carried
9 by an individual person, and

10 (d) said battery pack having a releasable communication link
11 with said battery utilization system which is automatically
12 released when the rechargeable battery pack is decoupled from
13 said coupling means of said battery utilization system.

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2 141. Apparatus according to claim 140, with said communication
3 link providing for the transmission of digital messages from the
4 battery utilization system to said battery pack.

1 142. Apparatus according to claim 140, with said communication
2 link providing for the transmission of a digitally coded command
3 message to said battery pack.

1 143. The battery powered utilization system of claim 142, with
2 said battery system being operable to store a battery-related
3 default value, and a computer processing system being operable to
4 send a digitally coded command message to said battery system for
5 introducing a value other than the default value into said
6 battery system.

1 144. The battery powered utilization system of claim 142, with a
2 computer processing system being operable to transmit a digitally
3 coded command message causing said battery system to transmit
4 battery-related information to said computer processing system.

1 145. The battery powered utilization system of claim 142, with a
2 computer processing system being operable to transmit a digitally
3 coded message to said battery system causing the battery system
4 to effect an action related to said battery.

1 146. The battery powered utilization system of claim 141, with a
2 computer processing system issuing a clock signal to said battery
3 system to control the transfer of messages to said battery
4 system.

1 147. The battery powered utilization system of claim 141, said
2 battery system being operable to request service from a computer
3 processing system by causing an interrupt thereto.

1 148. The battery powered utilization system of claim 141, said
2 communication link being operable to advise a computer processing
3 system when the battery is removed from said utilization system
4 during battery powered operation.

1 149. The battery powered utilization system of claim 141, said
2 battery system comprising a single chip circuit having a low
3 power standby mode.

1 150. The battery powered utilization system of claim 141, said
2 battery system being operative to obtain a measure of charging
3 voltage to be used for charging said battery, and being operative

4 to transmit information relating to the magnitude of the charging
5 voltage to a computer processing system.

1 151. The battery powered utilization system of claim 140, with
2 said battery system being operative to measure charging voltages
3 over a range substantially greater than a range equal to the
4 nominal voltage of the battery.

1 152. The battery powered utilization system of claim 140, with
2 said battery pack having electrically conductive contacts
3 providing a battery current path connecting with the coupling
4 means and providing a communication path for connecting a
5 communication link path of the battery pack with a communication
6 link path of the battery utilization system.

1 153. The battery powered utilization system of claim 140, with
2 said terminal processing circuitry being operable to transmit a
3 command signal to said battery pack for causing said battery pack
4 to take a control action.

1 154. The battery powered utilization system of claim 140, with
2 said battery pack being responsive to the command signal from the
3 terminal processing circuitry to set an alert point with respect
4 to a battery parameter at which the terminal processing circuitry
5 is to be notified.

1 155. The battery powered utilization system of claim 140, further
2 comprising a communications controller having a digital
3 communications interface for two-way communications, said
4 controller being responsive to a status inquiry from said battery
5 utilization system.

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1 156. A portable battery pack system comprising:

(a) a battery pack having a battery and having battery couplers
connected with said battery for coupling battery current to an
associated portable utilization device,

(b) said battery pack having a communication interface for
receiving messages from an external device, and for transmitting
battery-related information to an external device.

1 157. A portable battery powered utilization system comprising a
2 battery pack, a terminal device adapted to receive said battery
3 pack, conductive elements for connecting said battery pack to
4 said terminal device, and a controller comprising a battery
5 monitor circuit, said controller having a two-way digital
6 communications for interface for two-way communications with said
7 terminal device.

1 158. A portable battery powered utilization system according to
claim 157, with said terminal device being operable to send a
status inquiry signal to said controller.

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2 159. A portable battery powered utilization system according to
3 claim 158, with said terminal device being responsive to said
4 status inquiry signal from said terminal device for indicating a
5 charge cycle condition with respect to the battery pack.

1 160. A portable battery powered utilization system according to
2 claim 158, with said terminal device being responsive to said
3 status inquiry signal from said terminal device for indicating a
4 charge voltage condition with respect to the battery pack.

1 161. A portable battery powered utilization system according to
2 claim 158, with said terminal device being responsive to said
3 status inquiry signal from said terminal device for indicating a
4 voltage condition of the battery pack.

1 162. A portable battery powered utilization system according to
2 claim 158, with said terminal device being responsive to said
3 status inquiry signal from said terminal device for indicating a
4 low remaining capacity condition of the battery pack.

1 163. A portable battery powered utilization system according to
2 claim 158, with said terminal device being responsive to said
3 status inquiry signal from said terminal device for indicating a
4 battery discharge operation is in progress.

1 164. A portable battery powered utilization system according to
2 claim 158, with said terminal device being responsive to said
3 status inquiry signal from said terminal device for indicating a
4 battery charging operation is in progress.

1 165. A portable battery powered utilization system according to
2 claim 158, with said terminal device being responsive to said
3 status inquiry signal from said terminal device for indicating
4 that a start up operation with respect to said battery pack is in
5 effect.

C 1 166. A portable battery powered utilization system according to
2 claim 157, with said terminal device having terminal processing
3 circuitry for transmitting a command signal for transmitting a
4 command signal said battery pack via said two-way digital
5 communications interface.

1 167. A portable battery powered utilization system according to
2 claim 166, with said terminal processing circuitry being operable
3 to send a reset signal to said battery pack.

1 168. A portable battery powered utilization system according to
2 claim 166, with said terminal processing circuitry being operable
3 to send a read battery voltage signal to cause said battery pack
4 to return battery voltage information.

1 169. A portable battery powered utilization system according to
2 claim 168, with said terminal processing circuitry being operable
3 to send a read battery current signal to cause said battery pack
4 to return battery current information.

1 170. A portable battery powered utilization system according to
2 claim 166, with said terminal processing circuitry being operable
3 to send a read battery temperature signal to cause said battery
4 pack to return battery temperature information.

1 171. A portable battery powered utilization system according to
2 claim 166, with said terminal processing circuitry being operable
3 to send a read charge voltage signal to cause said battery pack
4 to return charge voltage information.

1 172. A portable battery powered utilization system according to
2 claim 166, with said terminal processing circuitry being operable
3 to send a read battery capacity signal to cause said battery pack
4 to return battery capacity information.

1 173. A portable battery powered utilization system according to
2 claim 166, with said terminal processing circuitry being operable
3 to send a read battery maximum capacity signal to cause said
4 battery pack to return battery maximum capacity information.

1 174. A portable battery powered utilization system according to
2 claim 166, with said terminal processing circuitry being operable
3 to send a read battery charge cycle count signal to cause said
4 battery pack to return battery charge cycle count information.

1 175. A portable battery powered utilization system according to
2 claim 166, with said terminal processing circuitry being operable
3 to send a read battery discharge cycle count signal to cause said
4 battery pack to return battery discharge count cycle information.

C 1 176. A portable battery powered utilization system according to
2 claim 166, with said terminal processing circuitry being operable
3 to send a read time duration signal to cause said battery pack to
4 return time duration information.

1 177. A portable battery powered utilization system according to
2 claim 166, with said terminal processing circuitry being operable
3 to send a read battery use signal to cause said battery pack to
4 return battery use information.

1 178. A portable battery powered utilization system according to
2 claim 166, with said terminal processing circuitry being operable
3 to transmit a command signal to said battery pack for causing
4 said battery pack to take a control action.

1 179. A portable battery powered utilization system according to
2 claim 178, with said battery pack being responsive to the command
3 signal from said terminal processing circuitry to set an alert
4 point with respect to a battery parameter at which said terminal
5 processing circuitry is to be notified.

1 180. A portable battery powered utilization system according to
2 claim 178, with said battery pack being responsive to the command
3 signal from said terminal processing circuitry to set a low
4 battery capacity alert value.

C 1 181. A portable battery powered utilization system according to
2 claim 178, with the battery pack being responsive to said command
3 signal from said terminal processing circuitry to set a low
4 battery voltage alert value.

1 182. A portable battery powered utilization system according to
2 claim 178, with the battery pack being responsive to said command
3 signal from said terminal processing circuitry to set a minimum
4 battery capacity alert value.

1 183. A portable battery powered utilization system according to
2 claim 178, with said battery pack being responsive to said
3 command signal from said terminal processing circuitry to
4 initiate a battery discharge operation.

1 184. A portable battery pack comprising a battery, conductive
2 elements for connecting said battery to an associated device, and
3 a controller coupled with said battery, said controller
4 comprising a battery monitor circuit, said controller having a
5 digital communications interface for two-way communications with
6 an associated device when operatively coupled with said battery.

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2 185. A portable battery pack according to claim 184, with said
3 controller being responsive to a status inquiry from an
4 associated portable terminal device to send a status signal via
5 said digital communications interface to said associated device
6 indicating a capacity condition of said battery.

1 186. A portable battery pack according to claim 184, with said
2 controller being responsive to a status inquiry from an
3 associated portable terminal device to send a status signal via
4 said digital communications interface to said terminal device
5 indicating charge cycle condition with respect to the battery.

1 187. A portable battery pack according to claim 184, with said
2 controller being responsive to a status inquiry from an
3 associated portable terminal device to send a status signal via
4 said digital communications interface to such terminal device
5 indicating a charge voltage condition with respect to said
6 battery.

1 188. A portable battery pack according to claim 184, with said
2 controller being responsive to a status inquiry from an
3 associated portable terminal device to send a status signal via
4 said digital communications interface to such terminal device
5 indicating a voltage condition of the battery.

1 189. A portable battery pack according to claim 184, with said
2 controller being responsive to a status inquiry from an
3 associated portable terminal device to send a status signal via
4 said digital communications interface to such terminal device
5 indicating a low remaining capacity condition of said battery.

C 1 190. A portable battery pack according to claim 184, with said
2 controller being responsive to a status inquiry from an
3 associated portable terminal device to send a status signal via
4 said digital communications interface to such terminal device
5 indicating a battery discharge operation is in progress.

1 191. A portable battery pack according to claim 184, with said
2 controller being responsive to a status inquiry from an
3 associated portable terminal device to send a status signal via
4 said digital communications interface to such terminal device
5 indicating a battery charging operation is in progress.

1 192. A portable battery pack according to claim 184, with said
2 controller being responsive to a status inquiry from an

3 associated portable terminal device to send a status signal via
4 said digital communications interface to such terminal device
5 indicating that a start up operation with respect to the battery
6 pack is in effect.

1 193. A battery management system comprising

2 (a) a battery pack,

3 (b) a cooperating device for operative association with said
4 battery pack,

5 (c) conductive elements for operatively connecting said battery
6 pack with said cooperating device, and

7 (d) a controller comprising a battery monitor circuit coupled
8 with said battery pack, said controller having a two-way digital
9 communications interface for two-way digital communication with
10 said cooperating device.

1 194. A system according to claim 193, wherein said controller is
2 powered by a battery means of said battery pack, and a voltage
3 regulator is interposed between said battery means and said
4 controller.

1 195. A system according to claim 193, wherein said controller
2 comprises a processing circuit with a low power standby mode.

1 196. A system according to claim 193, wherein said battery pack
2 has a battery for supplying power via said conducting elements,